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Foreword: Technologies, learning and culture across disciplines: International perspectives

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The nexus of technologies, learning and cultures is a complex area of study that is currently under-researched. It could be argued that this collection of papers itself represents an experiment in interdisciplinary research. In bringing these papers together, as guest editors, we have found the richness and diversity they contain to be a reminder of the complexity of this nexus. It is also a challenge: to synthesise some of the fundamental undercurrents and discontinuities that the papers clearly reveal, and to remain open to the incoherencies and conflicts that are also uncovered. The special issue has a very broad scope, including policy and educational systems analysis, quasi-experimental work, theoretical studies, as well as comparative work, and informal and mobile learning. These studies embrace disciplinary perspectives as diverse as Art and Design Education, Engineering, Mathematics, and Education. The featured research frameworks include participatory work, collaborative action research, and arts-based methods, as well as more formal mixed method studies. Major themes of sustainability, inequality, and employment cut across political contexts from Europe to Asia, Africa and Australasia. The settings feature practices from the design studio to the mathematics classroom and include both formal and informal learning designs. Furthermore, the technologies of learning embraced in the research collected here inevitably transform and challenge our notions of place, as teachers, learners and researchers. Mobile learning, and three-dimensional simulations of the real-world act as a serious stimulus to methodological diversity and innovation. It has been a privilege to edit and present this work; we hope that it will serve as a platform for future study.

Brown and Lally (2018), in their case study of perceptions of online assessment in mathematics, report on a collaborative international project between two higher education institutions in Finland and Ireland. They focus on engineering students' perceptions of online assessment in mathematics. Evidence from the data suggests that many of the students demonstrate low levels of confidence and display little knowledge about

continuous assessment processes. The study offers insight into the thinking of students, leading to possibilities for alternative approaches to curriculum and pedagogical design.

Czerniewicz and Rother (2018) examine issues of inequality at the intersection of higher education and educational technology in institutional settings. Their study provides a perspective on institutional educational technology policy informed by current understandings of inequality. Using content analysis of institutional educational technology policy and strategy documents in the United Kingdom and South Africa, they employ Therborn's typology of inequality alongside Bourdieu's concepts of capital. The study reveals low levels of engagement with issues of inequality in policy documents at an institutional level.

The focus of Sclater and Lally's (2018) paper is the project of reimagining higher education, using the theme of technology enhanced learning (TEL). Interdisciplinarity, they argue, is an essential feature of this work, and yet it is largely invisible in the TEL literature. Furthermore, they point out that TEL itself is also largely invisible in the sociology of education literature, and hence suffers a 'dual invisibility'. They go on to suggest that this may be connected to the crisis that has beset TEL research and pedagogy. Sclater and Lally (2018) argue that the use of theory in TEL work, leading to interdisciplinary theory-informed TEL projects, may be beneficial in the wider project of reimagining higher education for work and study. They use extensive examples from TEL and Art and Design Education to illustrate forms of interdisciplinary informal learning communities.

Larionova et al. (2018) offer a Russian perspective on online learning in their empirical study of massive open online courses (MOOCs). The use of MOOCs, they argue, provides opportunities for expanding educational choice, the development of virtual academic mobility, reduction in the cost of educational services, and improvement in the accessibility of education. Their study, undertaken at the Ural Federal University, uses a framework of blended learning, and online learning with tutoring support. The featured MOOC implementation showed mixed learning gains. The results of this empirical research may be useful for heads of educational organizations and teachers in making strategic decisions by increasing the effectiveness of the implementation of new educational technologies

Marshalsey and Sclater's (2018) paper focuses on TEL in specialist communication design studios in the UK and Australia. The impetus for their research comes from the challenges facing design studio educators as the use of technology in higher education increases

dramatically, and conventional design studio facilities are reconfigured into blended, studio-based classroom learning spaces. The two case studies use a participatory action research approach and the theoretical lens of sensory affect to reveal the obstacles to engagement faced by Australian participants in a TEL classroom-based environment, compared to their UK counterparts, who were situated in a conventional studio environment. This paper also presents an innovative transferable methodological framework – the methods process model – employed in this research.

The paper by Honeychurch and Patrick (2018) employs ‘affinity space’ and ‘connected learning’ theories to explore effective learning interactions in a massive online community that nurtures a participatory online culture: the globalised connected learning MOOC (CLMOOC). They investigate how the ethos of reciprocity and creative playfulness has developed in the CLMOOC, using a detailed analysis of Twitter interactions over a four-week period. They conclude that the key features of the community are framed by affinity spaces and explicit engagement with connected learning, leading to supportive behaviours of participants, who describe themselves as belonging to, or connected with, the community. They argue that Gee’s concept of affinity space is an appropriate model for the CLMOOC and ask how this might be replicated more widely in higher education settings.

Sclater’s (2018) paper focuses on technologies, sustainability and Art and Design Education. She argues that there is a pressing need to develop pedagogies for socio-ecological sustainability, and that this requires interdisciplinary approaches and new ways of thinking, working and researching practice. She further argues that there is need to adopt critical approaches to the use of technology in learning to embed an awareness of socio-ecological sustainability within education. The paper looks at: the relationship between aesthetic and creative responses that consider both individual (Deweyian) and societal perspectives (Vygotskian) and responses to the human condition; the relationship between analogue, digital and virtual creative practices in shaping learning spaces and as an important vehicle for the development of learning communities; and the relationship between informal, lifelong and formal learning. Sclater (2018) further explains how her research in *virtual worlds* has explored *how* technology can help in developing pedagogies of sustainability, by supporting learning communities to engage in creative and open investigation of the environmental crisis.

Traxler (2018) addresses the issues of building sustainable and authentic foundations for learning with mobiles in the globalised South. This is approached by reviewing the nature

of learning with mobiles in the global North, and the relationships between research, policy, and practice that exist there. The impact of mobile technology on language, and the projects of international development are also considered. He then consolidates these within a broader, critical historical framework that views education and technology as instruments of the hegemony of the global North, reinforcing its values and world view. Traxler (2018) points out the methodologically challenging and problematic aspects of this analysis, and then briefly considers how these arguments may be further developed.

Aljaber (2018) provides a historical overview of the development and evolution of e-learning in Saudi Arabia, with a focus on e-learning policy. He argues that the Ministry of Higher Education is at the centre of these developments. The paper examines recent e-learning-related developments in King Saud University, King Faisal University, King Abdulaziz University, and the Saudi Electronic University. As part of this analysis, Aljaber (2018) focuses on the challenges that are being encountered, and the strategies that each of these institutions is implementing to support and develop e-learning. The role of international partners, particularly the UK and USA, in supporting e-learning financially, socially and technologically, is also analysed. Future growth of the system is considered, with an exploration of the need for new methods of evaluating, securing and modifying the current provision.

Zhang et al. (2018) provide an overview of e-learning in China. They argue that the Chinese government has attached great importance to e-learning since its emergence in the 1990s. China's significant achievements in e-learning are pervasive. They relate to infrastructure construction, resources construction, academic education, non-academic training, and education for disadvantaged groups. However, challenges have emerged in the implementation of e-learning that urgently need to be addressed. Zhang et al. (2018) argue that these challenges are due to the constraints of traditional culture, information literacy, and educational mechanisms. As e-learning in China continues to grow, further research will be required to understand students' and teachers' perspectives on developments in e-learning, and to develop teachers' pedagogical capacity and ongoing professional development in e-learning settings.

Zozie and Chawinga (2018) focus on the development of an open digital university in Malawi, and its implications for Africa. Their study investigates how to exploit available information and communication technology (ICT) infrastructures to support the creation of an open digital university at Mzuzu University in Malawi. They take the findings from this

work to investigate the implications in a wider African context. Data were collected from lecturers, campus-based undergraduate students and open and distance learning undergraduate students. The study reveals students' and lecturers' proficiency with a plethora of ICTs that can be used to create a digital university. They conclude that a digital university is possible in Malawi and that, considering that other African universities are operating in similar economic, technological and political landscapes, they can also embrace the concept of a digital university.

In a short concluding paper Sclater et al (2018) consider some emerging themes in the domain of technologies, learning and culture. It is our hope that this collection of papers will serve as a reference point for future work in this emerging field.

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Madeleine Slater is a Senior Academic Fellow in Digital Learning at Glasgow School of Art and Programme Leader of a blended learning Masters of Education Programme in Learning, Teaching and Supervision in the Creative Disciplines. She is Deputy Editor Principal Editor of the *International Journal of Art and Design Education (IJADE)*, and Associate Editor of the recently formed online journal *Culture, Biography and Lifelong Learning* based at the University of Pusan, South Korea. Madeleine is widely published and is a regular speaker at conferences and events, both internationally and nationally. Over the last two decades, Madeleine has developed a strategic international research profile in the field of Education, Art and Design and Technology Enhanced Learning (TEL). With a background in Fine Art (Painting) and digital media, Madeleine has pioneered and researched new collaborative methodologies, using advanced technologies for the development of distributed studio-based creative education.

Vic Lally is a Professor of Education in the School of Education at the University of Glasgow, UK. He was Director of the Interdisciplinary Learning, Education, Technologies and Society Research Group (ILETS) and is currently an Associate Director of the Centre of Computer Science Education, and a core member of Centre of Research and Development in Adult and Lifelong Learning. Vic has researched and taught in many educational settings, including the recently completed Inter-Life Project for the UK Research Councils (EPSRC and ESRC). His main interests are in human learning: its ‘design’, philosophy and ethics, as well as the cultural and political contexts of learning. He is particularly interested in collaborative learning as a way of supporting human creativity and development.

